



Application No. : 09/390,824
Applicant : OBERMAIER, Hannsjorg
Filed : September 7, 1999
5 Art Unit : 2833
Examiner : FIGUEROA, Felix

Confirmation No. 7605 *125*

Docket No. : 10981400-7
Date: : October 4, 2003

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Honorable Commissioner for Patents
P.O. Box 1450
15 Alexandria, VA 22313-1450

APPELLANT'S BRIEF

20 Dear Sir:

(1) REAL PARTY IN INTEREST

The real party in interest in this application is assignee HEWLETT-PACKARD
25 COMPANY. During the pendency of this appeal, Appellant anticipates that the
application might be assigned to HEWLETT-PACKARD DEVELOPMENT COMPANY,
L.P., a related company. Should this assignment occur, it will not affect this appeal.

30 (2) RELATED APPEALS AND INTERFERENCES

No appeal or interference known to Appellant or Appellant's legal representative
will directly affect, or be directly affected by, or have a bearing on the Board's decision in
the pending appeal.

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(3) STATUS OF CLAIMS

Claims 2 and 16 were canceled, without prejudice, in a Preliminary Amendment filed May 10, 2002. Claims 20-22 are canceled in the Amendment After Final filed concurrently with Appellant's Brief. Claims 1, 3-15, 17-19 and 23-30, are pending in the application, and have been finally rejected by the Examiner. Appellant appeals the rejection of claims 1, 3-15, 17-19 and 23-30.

(4) STATUS OF AMENDMENTS

Appellant has concurrently filed an Amendment After Final canceling claims 20-22. Appellant is not yet informed of whether the Examiner has entered the Amendment After Final. Claims 1, 3-15, 17-19 and 23-30 stand as they were prior to the Examiner's final rejection.

(5) SUMMARY OF INVENTION

The present invention provides an improved on-line replacement system for use with computer system cards having bulkheads parallel to the insertion direction of the card. The system provides for safe and convenient insertion, replacement and removal of the cards. *See*, pg. 4, lines 20-24.

With reference to FIGS. 1 and 2, a carrier 11 is configured to carry a typical computer system card, e.g., a PCI card 17. The carrier is configured to be longitudinally received into a multi-card computer system chassis 23. The carrier has a first system connector 13 configured to mate with a system connector 15 on the PCI card. The carrier also has a second system connector 19 configured to mate with a longitudinally installable system connector 21 on the chassis. *See*, pg. 6, line 15 to pg. 7, line 2. The carrier 11 is configured to receive, structurally support, and electrically connect to the PCI card. *See*, pg. 8, lines 22-23.

The forward edge 45 of the PCI card 17 incorporates a bulkhead 49, which has a main surface 51 that can adjoin or mount connectors for external devices. *See*, pg. 8, lines 7-9. When the card 17 is fully inserted and locked into the carrier 11, and when the carrier is fully inserted into the chassis 23, the main surface 51 of the card bulkhead 49 is approximately coplanar and flush with an external wall of the chassis, providing for exterior access to the bulkhead. *See*, pg. 10, lines 13-16.

(6) ISSUES

- A) Whether claims 1, 3, 4, 6-9, 13, 14, 17-19 and 23-26 are unpatentable under 35 U.S.C. § 103(a), over Moss, U.S. Pat. No. 6,185,093, in view of Cranston, III et al., U.S. Pat. No. 5,708,563.
- B) Whether claim 5 is unpatentable under 35 U.S.C. § 103(a), over Moss in view of Cranston, III et al., and further in view of Welsh, U.S. Pat. No. 4,935,847.
- C) Whether claims 10, 12 and 15 are unpatentable under 35 U.S.C. § 103(a), over Moss in view of Cranston, III et al., and further in view of Clements, U.S. Pat. No. 5,963,681.
- D) Whether claim 11 is unpatentable under 35 U.S.C. § 103(a), over Moss in view of Cranston, III et al., and further in view of Beak, U.S. Pat. No. 5,496,185.

(7) GROUPING OF CLAIMS

With regard to Issues (A) to (D), above, independent claims 1, 8, 13, 17, and dependent claims 3-7, 9-12, 14, 15, 18, 19 and 23-30 stand or fall together.

(8) **ARGUMENT**

THERE IS NO SUGGESTION TO COMBINE THE CITED REFERENCES

5 The Examiner rejected claims 1, 3, 4, 6-9, 13, 14, 17-19 and 23-26, under
37 U.S.C. § 103(a), as allegedly unpatentable under 35 U.S.C. § 103(a), over Moss, in
view of Cranston, III et al. Rejected claim 5 depends from claim 1, rejected claims 10-12
depend from claim 8, and rejected claim 15 depends from claim 13. The rejections of
claims 5, 10-12 and 15 also recite Moss, in view of Cranston, III et al., and further in view
10 of other patents. However, as discussed below, this cited patents fail to provide any
suggestion to combine the disclosures of Moss and Cranston, III et al. Accordingly, the
rejections are improper and should be reversed.

- 15 i) A Prior Art Suggestion to Combine the References Is Required to Establish
a *Prima Facie* Case of Obviousness.

Obviousness cannot be established by combining the teachings of the prior art to
produce the claimed invention, absent some teaching or suggestion supporting the
combination. *In regarding Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992). The appropriate
20 inquiry is *not* whether it would have been obvious to substitute an element, or modify the
prior art, in a manner advanced by the Examiner, because that is not the appropriate test of
patentability. *See, e.g., In regarding Fine*, 837 F.2d 1071, 1075 (Fed. Cir. 1988). Rather,
to meet its burden of showing prima facie obviousness, the PTO must necessarily show
some objective teaching that would lead one of ordinary skill to combine the relevant
25 teachings to solve the problem confronting the applicant. *See, In regarding Fine, supra.*

Therefore, to establish a *prima facie* case of obviousness, there must be some
suggestion or motivation to modify the reference or combine the reference teachings. The
teaching or suggestion to make the claimed combination must be found in the prior art and
30 not based on an applicant's disclosure. *See*, M.P.E.P. § 706.02(j).

ii) The Prior Art Fails to Suggest a Combination of the References.

The Examiner fails to identify any explicit suggestion to combine the references. Instead, the Examiner asserts that it would have been obvious to combine the features of the disclosed devices, "to provide an external connection to the card." *See*, Office Action dated February 5, 2003, page 3, last sentence in the first full paragraph). The Examiner fails to identify a teaching or suggestion in the prior art to make the claimed combination.

As seen in Moss, Figs. 3-5, Moss relates to an carrier assembly (100) used to mount expansion cards (28) on a motherboard (30). To do so, the carrier assembly removably mounts in a computer system chassis (26) by inserting through a slot (102) on the chassis. The carrier assembly includes a carrier (46) made of plastic, and a jumper board (48) formed from a printed circuit board. The jumper board is screwed or riveted onto the carrier. *See*, Moss, col. 2, line 45, to col. 3, line 24. The central problem addressed by Moss is providing a device that protects and aligns an expansion card during insertion and removal of the card from a live chassis. *See*, Moss, col. 1, lines 37-41. The Moss device is configured to surround and protect the card rather than allow any external access to the card. Moss fails to provide any suggestion to combine the references.

Cranston III, et al. pertains only to a card cage that contains both a planar circuit board that includes a CPU (i.e., a motherboard), and various accessory boards that plug into the motherboard. The motherboard is the heart of the computer system, containing devices essential to the operation of the computer. *See*, Cranston III, et al., col. 3, lines 24-30, and col. 4, lines 31-35. The Cranston III, et al. device is not a card carrier assembly, but rather an insertable computer. Cranston III, et al. fails to provide any suggestion to combine the references.

iii) The Examiner Failed to Establish a *Prima Facie* Case of Obviousness.

There is no suggestion in either Cranston III, et al. or Moss to combine their disclosures. Indeed, actuating the Cranston III, et al. device removes both the motherboard and accessory boards, and thus completely shuts down the computer. This is self defeating from the standpoint of the Moss device, which is explicitly designed to provide for board removal from a live computer. Thus, those skilled in the art would not modify the device of Moss in light of the disclosure in Cranston III, et al.

Because the cited art fails to include a teaching or suggestion to make the claimed combination, the Examiner has failed to establish a *prima facie* case of obviousness. Accordingly, the rejections of independent claims 1, 8, 13, 17, and dependent claims 3-7, 9-12, 14, 15, 18, 19 and 23-30, under 37 U.S.C. § 103(a) are improper, and Applicant respectfully requests they be reversed.

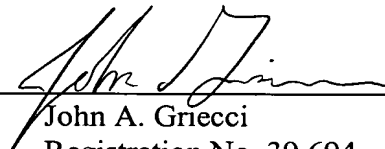
B) CONCLUSION

For the reasons set forth above, the rejections of claims are improper and should be reversed. A decision directing the Examiner to issue a Notice of Allowance is respectfully requested.

Respectfully submitted,

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APPENDIX

1. A carrier for connecting a planar printed circuit board card to a chassis, wherein the card has a bulkhead and a lower edge including a card system connector, wherein the
5 chassis defines an opening for receiving a card, and wherein the chassis includes a chassis system connector to be placed in communication with the card system connector of the received card, the chassis system connector and opening defining a carrier-insertion direction, comprising:

a planar body having a front end and a rear end;

10 a first system connector carried on the body and configured to mate and communicate with the card system connector in a card-insertion direction such that the plane of the printed circuit board card is parallel to the plane of the body; and

a second system connector carried on the body and configured to mate and communicate with the chassis system connector, wherein the second system connector is
15 in communication with the first system connector;

wherein the first and second system connectors are configured such that the card-insertion direction differs from the carrier-insertion direction;

wherein the body and the first and second system connectors are configured such that, with the card system connector mated to the first system connector, the second system
20 connector fits insertably through the opening in the chassis-insertion direction to mate with the chassis system connector; and

wherein the body and first system connector are configured such that the card bulkhead would be approximately coplanar with the chassis opening when the card system connector is mated with the first system connector and the second system connector is
25 mated with the chassis system connector.

3. The carrier of claim 1, wherein the body includes integral wiring to put the second system connector in communication with the first system connector.

4. The carrier of claim 1, and further including a guide at the front end of the body, the guide being configured to guide movements of the card in mating the card system connector with the first system connector, and the guide being configured to support the card when the card system connector is mated with the first system connector.

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5. The carrier of claim 1, and further including:

a guide at the front end of the body, the guide being configured to guide movements of the card in mating the card system connector with the first system connector, and the guide being configured to support the card when the card system connector is mated with the first system connector; and

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a handle integral with the guide, the handle being configured for controlling the insertion and extraction of the carrier into and out of the chassis.

6. The carrier of claim 1, and further including a first guide at the front end of the body and a second guide at the back end of the body, the first and second guides being configured to guide movements of the card in mating the card system connector with the first system connector, the first and second guides being configured to support the card when the card system connector is mated with the first system connector, and the second guide being adjustable to accommodate different length cards.

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7. The carrier of claim 1, wherein the first system connector is configured to receive a Peripheral Component Interconnect card.

8. A connection system for connecting a planar printed circuit board card to a chassis, wherein the card has a lower edge including a card system connector, wherein the card has a bulkhead extending along a side of the card that adjoins the lower edge, and wherein the chassis defines an opening for receiving a card, comprising:

5 a chassis system connector mounted in the interior of the chassis, the chassis system connector and opening defining a carrier-insertion direction; and

a carrier, the carrier comprising

a planar body having a front end and a rear end,

a first system connector carried on the body, the first system

10 connector being configured to mate and communicate with the card system connector in a card-insertion direction such that the plane of the printed circuit board card is parallel to the plane of the body, and

a second system connector carried on the body, configured to mate and communicate with the chassis system connector, the second system connector being in
15 communication with the first system connector,

wherein the first and second system connectors are configured such that the card-insertion direction differs from the carrier-insertion direction;

wherein the body and the first and second system connectors are configured such that, with the card system connector mated to the first system connector, the second system
20 connector fits insertably through the opening in the carrier-insertion direction to mate with the chassis system connector; and

wherein the body and first system connector are configured such that the card bulkhead would be approximately coplanar with the chassis opening when the card system connector is mated with the first system connector and the second system connector is
25 mated with the chassis system connector.

9. The connection system of claim 8, and further comprising a guide configured to guide the carrier through the chassis opening, and configured to guide the second system connector to mate with the chassis system connector.

5 10. The connection system of claim 8, and further comprising:
a guide extending from an end within the chassis to an end at the chassis opening, the guide being configured to guide the carrier through the chassis opening, and configured to guide the second system connector to mate with the chassis system connector, wherein the guide is configured as a track composed of a translucent material; and
10 a light source at the guide end within the chassis, the light source being configured to illuminate the guide end at the chassis opening, and the light source being configured to provide information on the status of the card.

11. The connection system of claim 8, and further comprising a compressive,
15 electrically conductive material configured to contact both the card and the chassis when the carrier and card are inserted in the chassis, to create an electrical connection between the chassis and the card.

12. The connection system of claim 8, and further comprising:

a guide extending from an end within the chassis to an end at the chassis opening,
the guide being configured to guide the carrier through the chassis opening, and configured
to guide the second system connector to mate with the chassis system connector, wherein
5 the guide is configured as a track composed of a translucent material;

a light source at the guide end within the chassis, the light source being configured
to illuminate the guide end at the chassis opening, and the light source being configured to
provide information on the status of the card; and

a compressive, electrically conductive material configured to contact both the card
10 and the chassis when the carrier and card are inserted in the chassis, to create an electrical
connection between the chassis and the card;

wherein the first system connector is configured to receive a Peripheral Component
Interconnect card.

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13. A computer system configured to be connected to a plurality of planar printed circuit board cards, wherein each card has a lower edge including a card system connector, and wherein each card has a bulkhead extending along a side of the card that adjoins the lower edge, comprising:

5 a chassis defining an interior and one or more openings into the interior for receiving the plurality of cards;

a central processing unit;

a bus connecting to the central processing unit;

10 a plurality of chassis system connectors mounted in the interior of the chassis and connected to the bus, each of the plurality of chassis system connectors defining a carrier-insertion direction with one of the one or more openings;

a plurality of carriers, each carrier comprising

a planar body having a front end and a rear end,

15 a first system connector carried on the body, the first system connector being configured to mate and communicate with the card system connector of at least one of the plurality of cards in a card-insertion direction such that the plane of the at least one printed circuit board card is parallel to the plane of the body, and

20 a second system connector carried on the body, configured to mate and communicate with at least one of the plurality of chassis system connectors, the second system connector being in communication with the first system connector,

wherein the first and second system connectors are configured such that the card-insertion direction differs from the carrier-insertion direction; and

25 a plurality of guides, each guide being configured to guide at least one of the plurality of carriers through one of the one or more chassis openings, and further guide the second system connector of the guided carriers to mate with one of the chassis system connectors;

wherein each body and corresponding first and second system connectors are configured such that, with one of the plurality of card system connectors mated to the first system connector, the second system connector fits insertably through at least one opening in the carrier-insertion direction to mate with at least one of the plurality of chassis system connectors; and

wherein each body and first system connector are configured such that the card bulkhead would be approximately coplanar with one of the one or more chassis openings when the card system connector is mated with the first system connector and the second system connector is mated with one of the plurality of chassis system connectors.

14. The computer system of claim 13, and further comprising a subsystem configured to isolate logic and power signals between one of the plurality of chassis system connectors and the rest of the plurality of chassis system connectors.

15. The computer system of claim 13, wherein:

each of the plurality of guides extend from an end within the chassis to an end at one of the one or more openings of the chassis, the guide being configured as a track composed of a translucent material;

the computer system further comprises a light source at the each of the plurality of guide ends within the chassis, the light source being configured to illuminate the guide ends at the chassis opening, and the light source being configured to provide information on the status of a card received along that guide; and

the computer system further comprises a subsystem configured to isolate logic and power signals between one of the plurality of chassis system connectors and the rest of the plurality of chassis system connectors, and configured to activate the light sources to provide the information on the status of the card.

17. A method of connecting a planar printed circuit board card to a computer, wherein the card has a lower edge including a card system connector, wherein the card has a bulkhead extending along a side of the card that adjoins the lower edge, wherein the computer has a chassis defining an interior and an opening into the interior for receiving the card, and wherein the computer has a chassis system connector mounted in the interior of the chassis, the chassis system connector defining a carrier-insertion direction with the opening, comprising:

 mating the card system connector with a system connector on a carrier, wherein the carrier includes:

 a planar body having a front end and a rear end,
 a first system connector carried on the body, the first system connector being configured to mate and communicate with the card system connector in a card-insertion direction such that the plane of the printed circuit board card is parallel to the plane of the body, and

 a second system connector carried on the body, configured to mate and communicate with the chassis system connector, the second system connector being in communication with the first system connector; and

 guiding the carrier through the chassis opening in the carrier-insertion direction to mate the second system connector with the chassis system connector;

 wherein the body and first system connector are configured such that the card bulkhead is approximately coplanar with the chassis opening after the card system connector is mated with the first system connector and after the second system connector is mated with a chassis system connector.

18. The method of claim 17, wherein the step of guiding comprises guiding the carrier with a guide configured to guide the carrier through the chassis opening, and configured to guide the second system connector of the carrier to mate with the chassis system connector.

19. The method of claim 17, and further comprising isolating logic and power signals to the chassis system connector prior to mating the second system connector with the chassis system connector.

5 23. The carrier of claim 1, wherein the card has bulkhead on a side of the card that adjoins the lower edge, wherein:

the card-insertion direction is parallel to the bulkhead.

10 24. The connection system of claim 8, wherein the card-insertion direction is parallel to the bulkhead.

25. The computer system of claim 13, wherein the card-insertion direction is parallel to the bulkhead.

15 26. The method of claim 17, wherein, in the step of mating, the card-insertion direction is parallel to the bulkhead.

27. The carrier of claim 1, wherein the chassis directly supports the body.

20 28. The connection system of claim 9, wherein the guide is configured to directly receive the body.

29. The connection system of claim 10, wherein the guide is configured to directly receive the body.

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30. The connection system of claim 12, wherein the guide is configured to directly receive the body.